

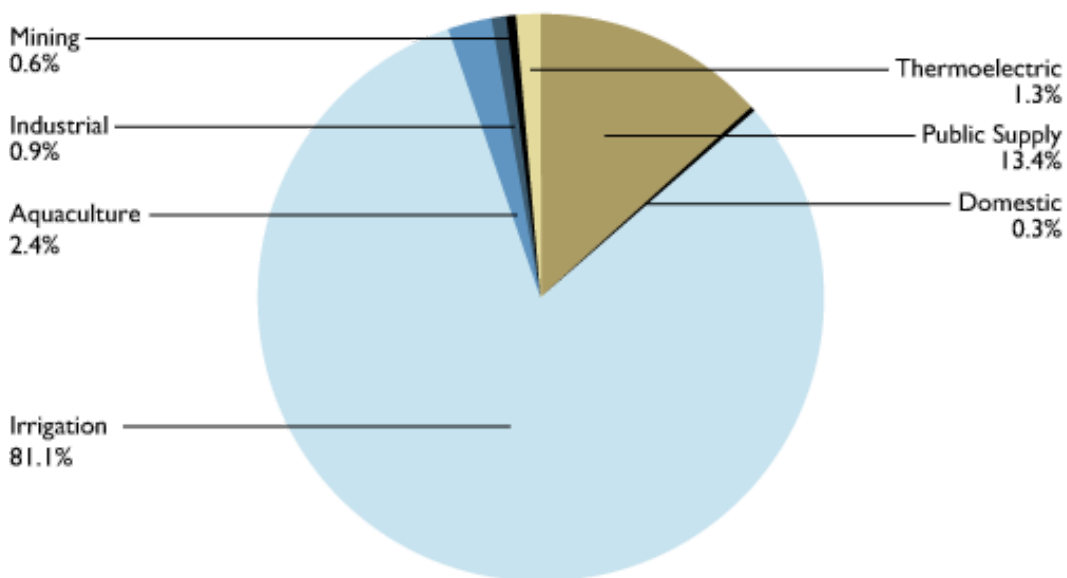
Utah Water Use & Quality

August 1, 2004

Utah Water Use

Every five years, the U.S. Geological Survey releases data on water usage by state. The data detail the amount of water used for agriculture, municipal and industrial uses (M&I- public or private water utility providers), mining, private industrial wells and thermoelectric generation. The data also provide a look at the sources of water within the state, either surface sources, such as lakes, reservoirs and rivers or ground sources — wells and springs. The release of these data is slow, and data from 2000 have just recently been published. Along with previous reports from 1985, 1990 and 1995, these data provide a time series of water usage in Utah and other states. According to the 2000 data, Utahns used 4.76 billion gallons of water per day. Figure 1 shows the breakout of water use by category in percentage terms. Irrigation remains Utah's largest use category and the percentage of water used for this purpose is up slightly from 79.2% in 1995.

Figure 1: Utah Fresh Water Usage by Category, 2000



In addition to the increase in the percentage of water used for irrigation purposes, the consumption of municipal water per capita in Utah also increased from 1995 to 2000. In 1995, 269 gallons were used per person per day in the state. In 2000, that climbed to 293 gallons. This was one of the largest increases in the country. Only four states, Colorado, Hawaii, Texas and Louisiana had larger increases in the amount of municipal water used per person. Drought conditions in all these states undoubtedly contributed to this increase as did the increasing urbanization of these areas. The table in Figure 2 shows the per capita use of M&I water for all states since 1985 and the percent change and ranking over the time period. Utah ranks 20th in the nation in terms of growth while Alabama saw the greatest growth in per capita water consumption and Pennsylvania saw the greatest decline.

Figure 2: M&I Water Use by State, 1985-2000

State	Per Capita Water Use in gallon/day				Percent Change 1985-2000	Rank Change
	1985	1990	1995	2000		
Alabama	175	193	237	233	33.0%	1
Arkansas	218	245	213	190	-13.0%	46
Arizona	200	209	206	222	10.9%	12
Arkansas	153	174	191	181	18.6%	07
California	219	229	184	203	-7.0%	36
Colorado	245	213	208	240	-2.1%	28
Connecticut	135	140	155	159	18.0%	9
Delaware	150	161	158	154	2.7%	21
Florida	172	172	170	174	1.0%	24
Georgia	179	187	195	186	3.5%	17
Hawaii	181	225	191	219	21.5%	5
Idaho	301	262	242	263	-12.7%	43
Illinois	181	184	175	161	-10.8%	40
Indiana	157	151	156	150	-4.5%	33
Iowa	164	154	173	159	-3.3%	29
Kansas	158	167	159	166	5.3%	16
Kentucky	146	166	148	150	3.1%	18
Louisiana	161	171	166	191	18.2%	8
Maine	130	154	141	140	7.8%	14
Maryland	217	203	200	189	-12.7%	44
Massachusetts	144	130	130	126	-12.7%	42
Michigan	170	184	188	159	-6.3%	34
Minnesota	175	176	145	133	-24.3%	49
Mississippi	138	167	152	164	18.7%	6
Missouri	156	166	161	183	17.3%	10
Montana	257	227	222	224	-12.8%	45
Nebraska	188	251	222	237	26.4%	3
Nevada	327	344	325	336	3.0%	19
New Hampshire	140	137	141	128	-8.1%	37
New Jersey	156	152	150	141	-10.1%	38
New Mexico	226	226	225	203	-10.3%	39
New York	180	183	185	150	-16.4%	47
North Carolina	172	169	162	177	2.4%	22
North Dakota	135	157	149	129	-4.3%	32
Ohio	160	143	153	154	-3.7%	31
Oklahoma	184	193	194	214	16.4%	11
Oregon	214	212	234	207	-3.3%	30
Pennsylvania	196	189	171	145	-26.2%	50
Rhode Island	131	109	130	129	-1.6%	27
South Carolina	142	166	200	179	25.7%	4
South Dakota	146	137	146	149	2.3%	23
Tennessee	171	175	176	170	-0.9%	25
Texas	194	192	187	215	10.6%	13
Utah	285	308	269	293	2.8%	20
Vermont	155	117	149	166	7.4%	15
Virginia	138	151	158	136	-1.4%	26
Washington	271	221	266	208	-23.1%	48
West Virginia	115	136	133	146	26.8%	2
Wisconsin	184	174	169	172	-6.3%	35
Wyoming	298	259	262	264	-11.5%	41
U.S. Average	184	186	184	183	-0.2%	NA
Intermountain Region Average	267	256	245	256	-4.4%	NA

Source: U.S. Geological Survey

Sources of Utah Water

Water is classified to have one of two sources of origin. Water comes from either surface sources — lakes, rivers and streams or from ground sources — springs and wells. In Utah, 78.6% of total water withdrawals are from surface sources. However, for public drinking water supplies, 57.1% comes from ground water sources. Ground water tends to be of a higher quality and requires less treatment to reach drinking water quality. Utah's 57.1% ranks the state 10th in the nation for the percentage of public drinking that originates from ground sources. Figure 3 details ground water withdrawals for M&I use by state. Perhaps the most interesting

comparisons are with Utah's neighboring states. For example, Colorado is one of the lowest ground water users in the nation; only 6% of Colorado's publicly supplied drinking water originates from ground sources. Conversely, both Idaho and New Mexico receive over 88% of their drinking water from ground sources. In the case of New Mexico, there is little potable surface water to utilize in public systems. In Idaho, it appears to be a case of water rights. Most of the surface water in the state goes for irrigation. Municipalities in that state need to search elsewhere for water resources.

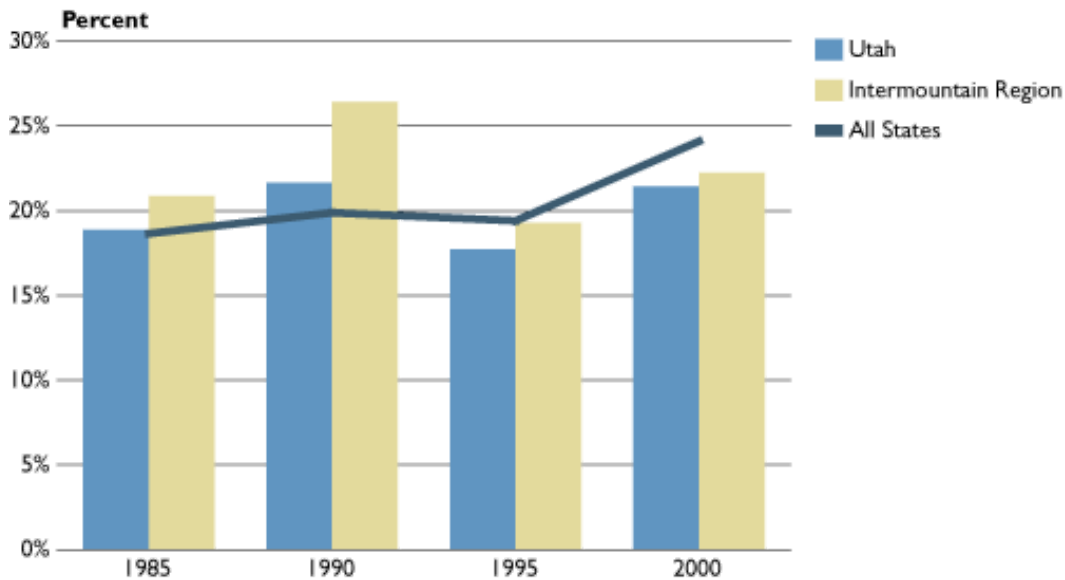
Figure 3: Public Supply by State and Source, 2000

State	M&I (Withdrawals mgpd)			M&I Source as a Percent		Rank Ground Withdrawals as a Percent
	Surface	Ground	Total	Surface	Ground	
Alabama	553.0	281.0	834.0	66.3%	33.7%	27
Alaska	50.7	29.3	80.0	63.4%	36.6%	23
Arizona	613.0	469.0	1,082.0	56.7%	43.3%	19
Arkansas	289.0	132.0	421.0	68.6%	31.4%	30
California	3,320.0	2,800.0	6,120.0	54.2%	45.8%	17
Colorado	846.0	53.7	899.7	94.0%	6.0%	50
Connecticut	358.0	66.0	424.0	84.4%	15.6%	44
Delaware	49.8	45.0	94.8	52.5%	47.5%	15
Florida	237.0	2,200.0	2,437.0	9.7%	90.3%	02
Georgia	968.0	278.0	1,246.0	77.7%	22.3%	36
Hawaii	017.6	243.0	250.6	3.0%	97.0%	01
Idaho	25.3	219.0	244.3	10.4%	89.6%	03
Illinois	1,410.0	353.0	1,763.0	80.0%	20.0%	40
Indiana	326.0	345.0	671.0	48.6%	51.4%	13
Iowa	79.8	303.0	382.8	20.8%	79.2%	07
Kansas	244.0	172.0	416.0	58.7%	41.3%	20
Kentucky	455.0	71.0	526.0	86.5%	13.5%	47
Louisiana	404.0	349.0	753.0	53.7%	46.3%	16
Maine	72.5	29.6	102.1	71.0%	29.0%	32
Maryland	740.0	84.6	824.6	89.7%	10.3%	48
Massachusetts	542.0	197.0	739.0	73.3%	26.7%	33
Michigan	896.0	247.0	1,143.0	78.4%	21.6%	38
Minnesota	171.0	329.0	500.0	34.2%	65.8%	08
Mississippi	40.4	319.0	359.4	11.2%	88.8%	04
Missouri	594.0	278.0	872.0	68.1%	31.9%	29
Montana	92.4	56.1	148.5	62.2%	37.8%	22
Nebraska	63.8	266.0	329.8	19.3%	80.7%	06
Nevada	478.0	151.0	629.0	76.0%	24.0%	34
New Hampshire	64.1	33.0	97.1	66.0%	34.0%	26
New Jersey	650.0	400.0	1,050.0	61.9%	38.1%	21
New Mexico	33.8	262.0	295.8	11.4%	88.6%	05
New York	1,980.0	583.0	2,563.0	77.3%	22.7%	35
North Carolina	779.0	166.0	945.0	82.4%	17.6%	42
North Dakota	31.2	32.4	63.6	49.1%	50.9%	14
Ohio	966.0	500.0	1,466.0	65.9%	34.1%	25
Oklahoma	562.0	113.0	675.0	83.3%	16.7%	43
Oregon	447.0	118.0	565.0	79.1%	20.9%	39
Pennsylvania	1,250.0	212.0	1,462.0	85.5%	14.5%	45
Rhode Island	102.0	16.9	118.9	85.8%	14.2%	46
South Carolina	462.0	105.0	567.0	81.5%	18.5%	41
South Dakota	39.1	54.2	93.3	41.9%	58.1%	09
Tennessee	569.0	321.0	890.0	63.9%	36.1%	24
Texas	2,970.0	1,260.0	4,230.0	70.2%	29.8%	31
Utah	274.0	364.0	638.0	42.9%	57.1%	10
Vermont	40.6	19.5	60.1	67.6%	32.4%	28
Virginia	650.0	70.7	720.7	90.2%	9.8%	49
Washington	552.0	464.0	1,016.0	54.3%	45.7%	18
West Virginia	149.0	41.6	190.6	78.2%	21.8%	37
Wisconsin	293.0	330.0	623.0	47.0%	53.0%	12
Wyoming	49.4	57.2	106.6	46.3%	53.7%	11
TOTAL	27,300.0	16,000.0	43,300.0	63.0%	37.0%	NA

Source: U.S. Geological Survey

An ongoing concern about ground water usage is that the water is not as readily replenished as surface water and that over-usage of this resource will dry up deep aquifers, some of which are the source of surface waters. Nationally, there seems to be an increase in the proportion of ground water used. In the Intermountain West as well as in Utah, ground water usage has fluctuated over the time series with a peak in 1990, as shown in Figure 4.

Figure 4: Utah, Intermountain Region and U.S. Groundwater Usage as a Percent of Total Water Withdrawals, 1985-2000



Utah Surface Water Quality

This shift to a greater reliance on ground water can, in part, be attributed to concerns over surface water quality. The U.S. Environmental Protection Agency provides analysis of surface water quality for states. The quality assessments go beyond whether or not surface water can be used in drinking water to include considerations like fish and wildlife protection, recreational use, navigation and agriculture use. Assessments are performed on all types of surface water including lakes, rivers, reservoirs, bays and estuaries, near shore and off shore oceanic water quality. Figure 5 provides summary information on rivers and lakes/reservoirs for those states that have submitted assessment information to the EPA. The figure includes the percentage of rivers and lakes that were classified as “good” and each state’s ranking relative to the other states. For this summary, bay, estuary and ocean data were not analyzed, since those water sources do not typically provide water for municipal systems. As the figure shows, Utah’s water quality rates fairly well, ranking 8th on river quality and 7th for lake/reservoir quality. Most of the intermountain states rank high at least on one indicator. Colorado ranks second in the nation for both river and lake quality. Montana is the overall lowest performing state, due to surface water pollution from mining activities. The overall good ratings of the Intermountain West are due in large part again to geography and demographics. Many of the nation’s rivers have their genesis in the Rocky Mountains and the low population density of these areas means that waters exiting the intermountain states are relatively clean.

Figure 5: Surface Water Quality Ranking by State, 2000

Percent Rated "Good" and Ranking

State	Streams	Rank	Lakes	Rank
Alaska	63.6%	19	69.8%	9
Arizona	85.5%	6	NA	NA
Arkansas	94.0%	4	93.3%	3
California	38.9%	30	22.4%	25
Colorado	97.5%	2	93.8%	2
Connecticut	23.0%	34	57.1%	14
Delaware	0.6%	39	13.2%	31
Florida	63.9%	18	39.3%	19
Hawaii	32.3%	31	NA	NA
Iowa	64.0%	16	38.6%	20
Illinois	70.2%	14	22.1%	26
Indiana	63.9%	17	5.1%	34
Kansas	18.6%	35	14.5%	30
Kentucky	60.0%	22	44.5%	16
Louisiana	30.2%	32	28.0%	22
Massachusetts	52.4%	25	33.3%	21
Maryland	66.2%	15	42.5%	17
Minnesota	11.6%	37	68.3%	10
Missouri	48.2%	26	24.0%	23
Mississippi	55.3%	24	51.0%	15
Montana	55.7%	23	19.5%	27
North Carolina	95.6%	3	87.1%	5
North Dakota	75.5%	12	22.6%	24
Nebraska	76.4%	10	87.8%	4
Nevada	41.8%	29	100.0%	1
Ohio	27.2%	33	10.8%	33
Oklahoma	63.4%	20	17.6%	28
Pennsylvania	80.9%	7	3.1%	35
Rhode Island	77.6%	9	85.0%	6
South Carolina	42.3%	28	67.1%	11
South Dakota	42.7%	27	16.4%	29
Tennessee	87.3%	5	77.8%	8
Texas	75.8%	11	57.7%	13
Utah	79.5%	8	78.5%	7
Virginia	60.6%	21	40.3%	18
Vermont	4.9%	38	1.6%	36
Wisconsin	75.1%	13	63.9%	12
West Virginia	18.3%	36	11.3%	32
Wyoming	99.4%	1	0.0%	37
U.S. Total	72.4%	NA	47.3%	NA

Source: U.S. Environmental Protection Agency, compiled from states' individual 305(b) reports

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